

IN THE CLAIMS:

Please amend claims 33, 37, 38 and 41 and add claims 42-43 as follows.

1-20. (Cancelled)

21. (Previously Presented) A method for detecting network elements relaying communications between a base station and a mobile station in a mobile communication network, said method comprising:

monitoring time delays associated with communications between base stations and mobile stations;

calculating a timing advance which corresponds to time delays associated with communications between the base stations and the mobile stations;

determining whether a communication was relayed via at least one of the network elements by detecting an increased time delay as compared to a known time delay of mobile stations communicating directly with the base stations; and

sending an event notice to a network management system, when a presence of at least one of the network elements is initially detected;

wherein a determination is made that the communication is relayed via at least one of the network elements if the timing advance has a value which is greater than a predetermined value.

22. (Previously Presented) The method according to claim 21, further comprising:

identifying the communication relaying elements based on the communication time delays.

23. (Canceled)

24. (Canceled)

25. (Previously Presented) The method according to claim 21, wherein the predetermined value is zero.

26. (Previously Presented) The method according to claim 21, wherein the mobile communication network is a GSM network.

27. (Canceled)

28. (Previously Presented) The method according to claim 21, wherein the time delays are monitored by a base transceiver station (BTS).

29. (Previously Presented) The method according to claim 21, wherein the time delays are monitored by a base station controller (BSC).

30. (Previously Presented) The method according to claim 21, further comprising:

monitoring the communication relayed via at least one of the network elements to determine various parameters which provide information with respect to network functionality and the network elements.

31. (Previously Presented) The method according to claim 21, wherein at least one of said network elements is a radio repeater.

32. (Previously Presented) The method according to claim 21, wherein at least one of said network elements is an optical tunnelling configuration.

33. (Currently Amended) A system for detecting network elements relaying communications between a base transceiver station and a mobile station in a mobile communication network, where time delays between base transceiver stations and mobile stations are monitored, the system comprising:

a monitoring unit configured to monitor~~means for monitoring~~
communications between a base transceiver station and a mobile station;

a calculating unit configured to calculate~~means for calculating~~ a timing advance which corresponds to time delays between the base transceiver stations and the mobile stations;

a detecting unit configured to detect~~means for detecting~~ communications relayed via at least one of the elements by detecting an increased time delay as compared to known time delays of mobile stations communicating directly with the base transceiver station; and

a sending unit configured to send~~means for sending~~ an event notice to a network management system when a presence of at least one of the network elements is initially detected;

wherein a determination is made that a communication is relayed via at least one of the network elements if the timing advance has a value which is greater than a predetermined value.

34. (Canceled)

35. (Previously Presented) The system according to claim 33, wherein the mobile communication network is a GSM network.

36. (Canceled)

37. (Currently Amended) The system according to claim 33, the system further comprising a carrying unit configured to carry ~~means for carrying~~ out measurements from the communication relayed via at least one of said elements.

38. (Currently Amended) A network element for cellular communication networks comprising:

a relay element detection device for configured to identify ~~means for identifying~~ communication relaying elements by detecting communication time delays between base stations and mobile stations in the cellular communication network;

a calculating unit configured to calculate ~~means for calculating~~ a timing advance which corresponds to time delays between the base stations and the mobile stations; and

a sending unit configured to send ~~means for sending~~ an event notice when a presence of the network element is initially detected;

wherein a determination is made that a communication is relayed via the communication relaying elements if the timing advance has a value which is greater than a predetermined value.

39. (Previously Presented) The network element according to claim 38, wherein the network element is a base transceiver station (BTS).

40. (Previously Presented) The network element according to claim 38, wherein the network element is a base station controller (BSC).

41. (Currently Amended) The method according to claim 21, wherein the step of determining whether a communication was relayed via at least one of the network elements is performed without requiring any additional monitoring equipment to be located in the network element performing the relaying and without requiring any additional signaling to be generated by the network element performing the relaying.

42. (New) An apparatus for detecting network elements relaying communications between a base transceiver station and a mobile station in a mobile communication network, where time delays between base transceiver stations and mobile stations are monitored, the apparatus comprising:

means for monitoring communications between a base transceiver station and a mobile station;

means for calculating a timing advance which corresponds to time delays between the base transceiver stations and the mobile stations;

means for detecting communications relayed via at least one of the elements by detecting an increased time delay as compared to known time delays of mobile stations communicating directly with the base transceiver station; and

means for sending an event notice to a network management system when a presence of at least one of the network elements is initially detected;

wherein a determination is made that a communication is relayed via at least one of the network elements if the timing advance has a value which is greater than a predetermined value.

43. (New) An apparatus comprising:

a relay element detection device for identifying communication relaying elements by detecting communication time delays between base stations and mobile stations in the cellular communication network;

means for calculating a timing advance which corresponds to time delays between the base stations and the mobile stations; and

means for sending an event notice when a presence of the network element is initially detected;

wherein a determination is made that a communication is relayed via the communication relaying elements if the timing advance has a value which is greater than a predetermined value.